

Chapter 8

Urban Design Improvements

Urban Design Objectives

Transit stations serve more purposes than providing a location for passengers to board/alight transit vehicles. A well-designed transit station is comfortable, secure, convenient, and can also offer a variety of amenities, from shade and seating to information and public art. Ease and speed of boarding and safe access to the station are important elements of a well-designed transit station.

Urban design combines aspects of architecture, landscaping, engineering, and graphic design to create a pleasing vista. It is not unlike furnishing a home, except that instead of rooms, the design includes streets, corridors, or neighborhoods. The concepts of urban design can be used to rehabilitate and upgrade an entire area, to enhance an existing neighborhood character, or to preserve the historic elements of an area. In the case of an established and historic city such as San Diego, the transit stations should be integrated into the existing neighborhoods, and the concepts of urban design must be applied to ensure that the transit stations are welcome visual elements in the panorama of the corridor.

Context is important for the system to help establish a sense of place and a character that is consistent with the character of El Cajon Boulevard and Park Boulevard. Visual appeal is important in attracting new riders who have not and may never be transit riders on the standard bus service and facilities. This visual appeal needs to be apparent to those who are regular users of the system, as well as those who may travel the corridor and could be persuaded to become system users. As a Showcase project, the facilities associated with the project need to be recognizable to everyone in the region while still being sensitive to the context of the local area. MDTB's existing trolley service has achieved success by improving the urban experience for the commuter and providing a transportation icon for the community. The challenge for the Showcase project is to provide a similar uplifting urban experience and a new transportation icon in the context of the El Cajon/Park Boulevard corridors.

To attract ridership, the urban design of the station and route facilities should present a unique and dynamic image that reflects the speed, ease, and comfort of using BRT transit. Design elements should be cohesive and consistent throughout the route to ensure that the BRT is recognizable to both residents and visitors, while at the same time preserving the character of the individual neighborhoods along the route. An overall theme should be developed for the Showcase Project as a whole, with individual elements that can be adapted to specific neighborhood settings. Equally important are the elements that provide a pleasant commute, including wayfinding and access to the stations, simplified route information and ticket purchasing, and comfortable and safe waiting facilities.

The existing character of both the El Cajon Boulevard and northern Park Boulevard segments of this project derive their image from the automotive culture of the 1940s through the 1960s. The pattern of development and the roles that these two major corridors played during this timeframe were instrumental in the vitality of this area. The El Cajon Boulevard corridor was the arterial link to the first suburban communities of San Diego. As such, the architecture developed with forms and graphics intended to be seen by passing motorists. Businesses along the routes were commercial strip oriented, but were also built during a time when storefront development (in a traditional sense) was still the dominant pattern. This pattern was interrupted by development of the 1960s through the 1990s, where commercial strip developments emphasized parking lots in front of buildings.

The architectural character of this corridor is a direct result of the highway or boulevard nature of these major arterials, as well as the timeframe when most of the development occurred. A distinct art deco, streamline moderne and automotive-oriented design character is displayed, often manifested with elegant open metal structures, bold geometric forms, and dynamic blade signs intended to catch the eye of the passing motorist. Wholesale removal of these architectural styles has not occurred, and many have been renovated to celebrate the aesthetic quality of these period styles. The design of the Showcase Project transit stations and other facilities has taken into account the existing urban context and has responded with a modern interpretation of these classic and simple forms. Through careful study of the corridors, along with extensive input from the community, overall urban design goals have been established for the Showcase Project, including the following:

- Create a heightened urban experience for commuters to show that using the BRT is more pleasurable and less stressful than the automotive commute.
- Create a character that is both unique to and harmonious with the urban design character of both El Cajon Boulevard and Park Boulevard.
- Create a special character for facilities along the Balboa Park segment of Park Boulevard that relates specifically to the Spanish Colonial Revival period of this important urban park.
- Preserve views from El Cajon Boulevard to fronting businesses.
- Assure that all elements of a station relate to each other, assisting in creating a cohesive character for the project.
- Provide for a clean, streamlined, and simple (but bold) statement that is very apparent and understandable to the hundreds of thousands of daily users of this corridor.
- Orient the structures to vehicular movements in the corridor. Most viewers of these facilities will be from public streets in the area, traveling mostly by vehicle.
- Create design elements that help to celebrate the area, as well as announce the transit system.
- Integrate the design aspects of the project with the functional requirements of boarding, waiting, and information dissemination.
- Provide a safe and comfortable environment consistent with a trolley-like level of service. This includes shelter from the sun, wind, and rain; a defensible space for security; and places to sit and stand for the wait time typical of a transit station.

- Create a design that is consistent with the speed and efficiency that the Showcase Project is attempting to deliver to transit riders. The shelters should emphasize speed and movement. The graphic design and color schemes should also emphasize this motion. The design needs to be clean and dynamically asymmetrical, suggesting a leaning forward movement, preferably in the direction of travel.
- Encourage the integration of public art and other neighborhood-specific information or art images into the structure and information display systems of the transit facility.

Pedestrian Access Objectives

An equally important aspect of the Showcase Project is recognizing and improving the pedestrian environment in the corridor. The convenience and safety of the transit rider should always be a priority. In addition, ease of access and safety are integral to enhancing the overall urban commuter experience—and an important element in attracting and increasing ridership. Unlike many suburban arterials, the pedestrian environment of El Cajon and Park Boulevard was created as part of the development of these two major corridors and as such represents a good blending of auto and pedestrian travel. Major pedestrian objectives include:

- Provide universal access to areas around transit stations. This is a broader interpretation of the Americans with Disabilities Act (ADA) that emphasizes the benefit that all receive when challenges in the physical environment are minimized.
- Create safe crossings around stations that put the transit rider in properly designated crosswalks and discourage the unsafe practice of jaywalking.
- Enhance the current pedestrian environment by creating more pleasant walking conditions.
- Improve the environment at the transit stop by designing comfortable and secure waiting areas that provide shade, protection, information, and security. A pleasant experience at the stations is another component in achieving sustained ridership.
- Accommodate various levels of transit rider boarding movements for individuals who have varying degrees of mobility. Efficient boarding is a key element in the speed of a BRT system.
- Help to improve the safety and connectivity aspects of the adjacent pedestrian environment for transit users and the non-transit pedestrian alike.

Station Program Requirements

Each of the specific transit station locations has different conditions that may allow for facilities of different sizes. Each facility element has a minimum, ideal, and maximum dimension, which should be used to match the sizing of the facilities with the station. **Figure 8-1** shows the comparison of the types of transit stations that were considered for the Showcase Project.

Early on in the development of this project, it became clear that the standard 10- to 12-foot sidewalk environment could not support the types and scale of the proposed Showcase Project shelters and station amenities. For this reason, as well as for reasons of in-lane traffic flow priorities, it was decided that bulb-outs that bring the sidewalk and station elements to the edge of the travel lane were desirable.

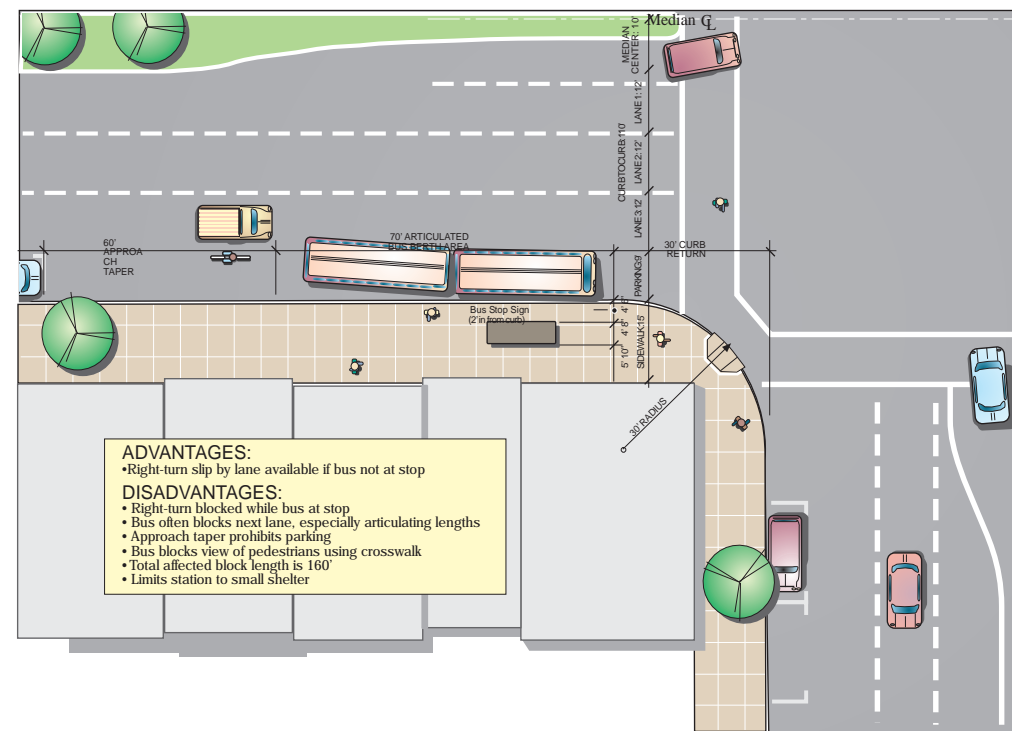


TRANSIT STOP ALTERNATIVE INTERSECTION LOCATIONS

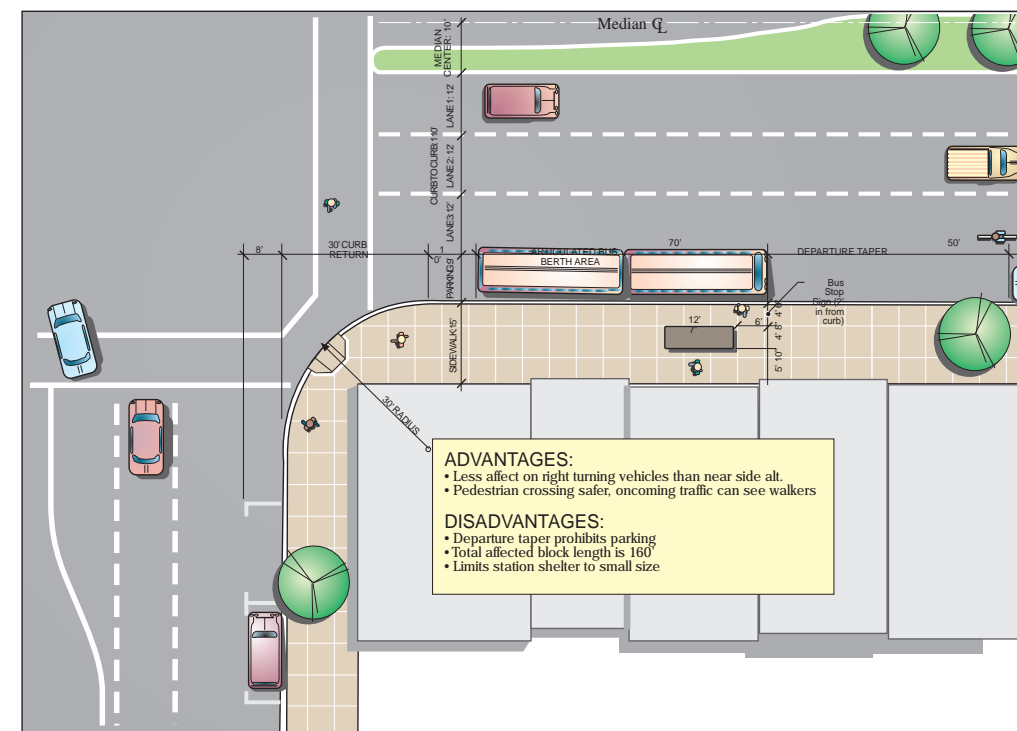


SDSU to DOWNTOWN
BUS RAPID TRANSIT SHOWCASE PROJECT

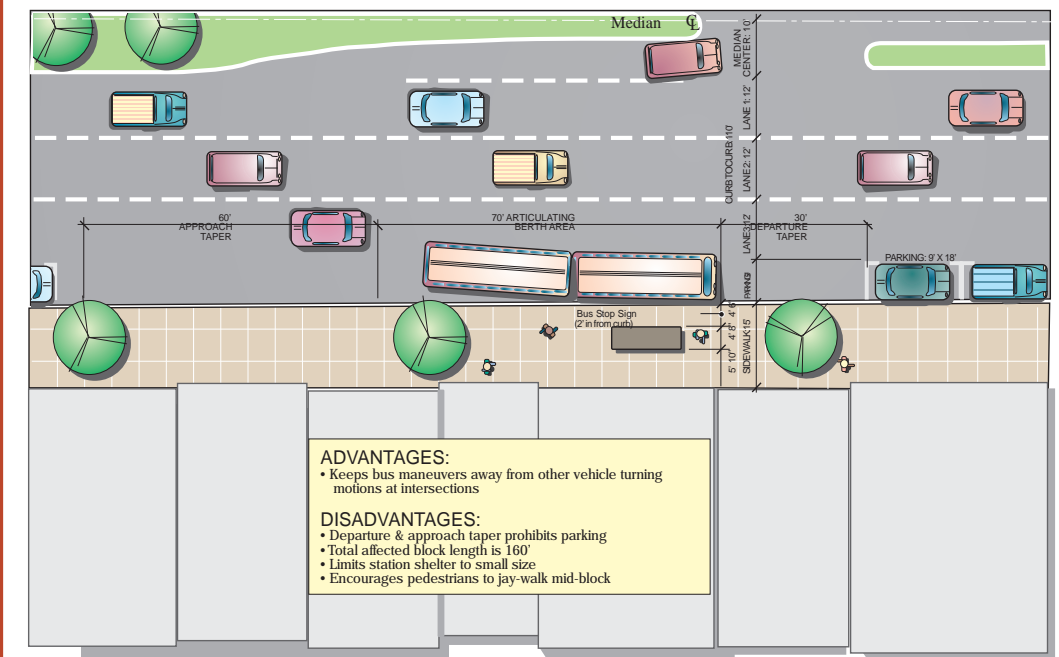
ALT. 1A: NEAR-SIDE CURBSIDE PULLOUT LANES



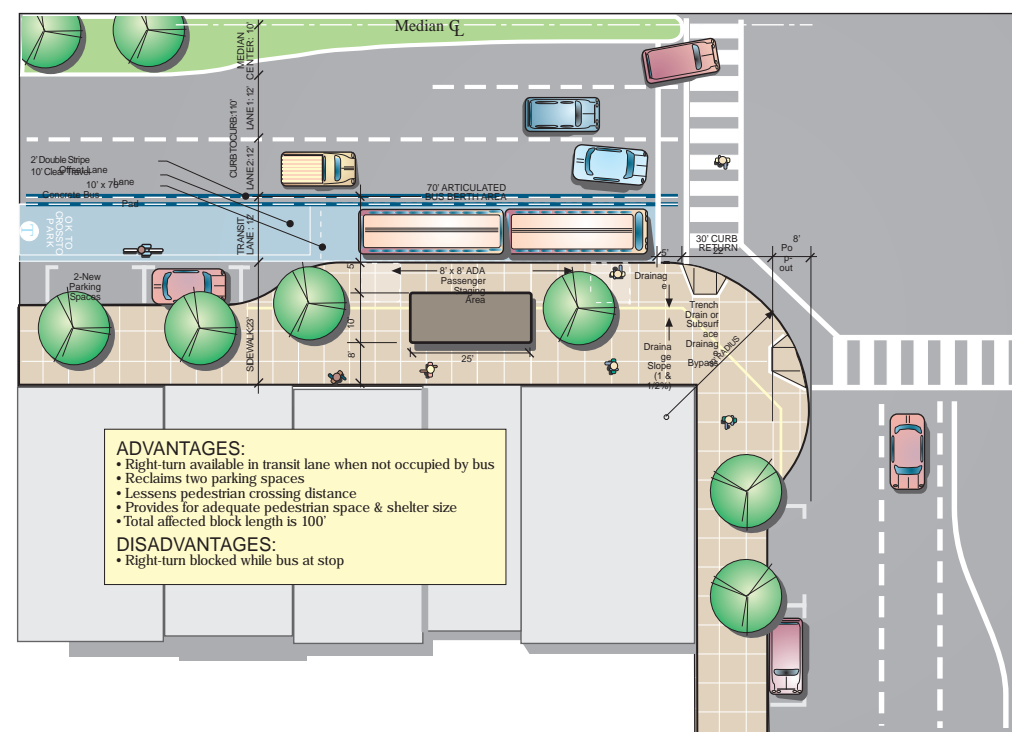
ALT. 2A: FAR-SIDE CURBSIDE PULLOUT LANES



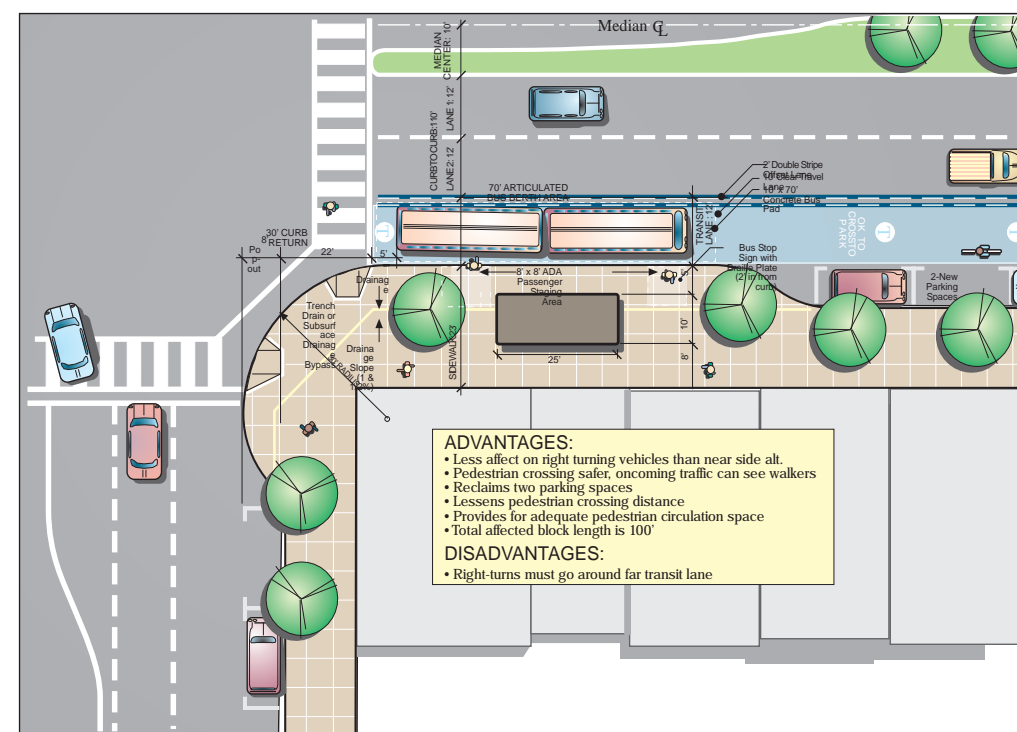
ALT. 3A: MID-BLOCK CURBSIDE PULLOUT LANES



ALT. 1B: NEAR-SIDE BUS BULB-OUT



ALT. 2B: FAR-SIDE BUS BULB-OUT



ALT. 3B: MID-BLOCK BUS BULB-OUT

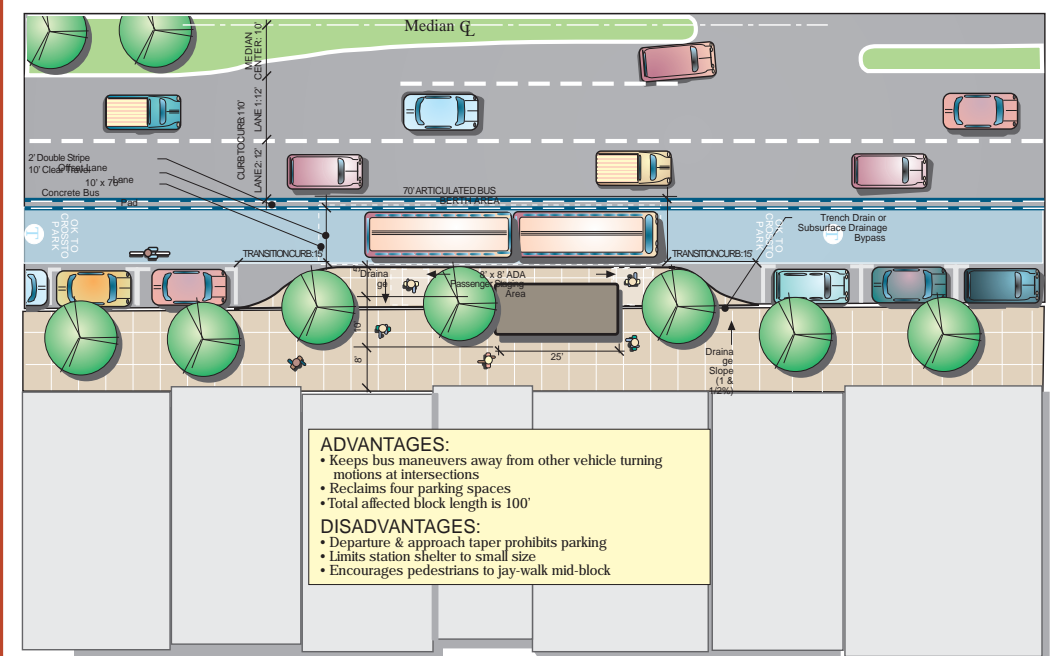


Figure 8-1: Station Location Comparisons

Table 8-1 shows the range of facility sizes needed to efficiently and effectively create a transit station. In most cases, the "ideal" column of this table has been used to lay out the transit shelter and station amenities.

Table 8-1 Summary of Station Requirements; SDSU Showcase BRT Project

Street/Station Interface Criteria	Minimum	Ideal	Maximum
Station (in-lane type/far side) straight curb length	65'	80'	130'
Station (in-lane type/ far side) curb length from perpendicular street curb line	95'	110'	150'
Distance between rear door and front of bus (articulating)	45'	47'	50'
Straight curb distance needed for one articulating BRT & one standard bus	110'	125'	150'
Height of outer curb nearest BRT doors	6 inches	8 inches	9 inches
Cross slope pitch of walkway/platform	1%	1.5%	2%
Primary slope of walkway (ramp above 5%)	1%	2%	6%
Lane Criteria			
Lane width for in-lane transit stop	10'	10' + 2' Stripe	14'
Lane width for pull-out curb length	12'	12'	14'
Station Layout Criteria			
Distance from building face to back of vertical element of the shelter	1'	5'	10'
Distance from front of vertical element of sign to curb	2'	2'	3'
Distance from front of shelter to curb	3'	5'	8'
Total width of platform area from curb to property setback	12'	20'	NA
Height clearance of horizontal obstruction over walking area	8'	10'	NA
Height clearance of any horizontal element over the transit lane past the curb	14'6"	15'6"	16'6"
Width at boarding door area for ADA access	6.88 x 6.5'	8' x 8'	8' x 8'
Station Element Checklist (required elements at all stations)			
Moderate size solid roof shade shelter with integral logo/name	8' x 4'	12' 7" x 4' 8"	16' 7" x 4' 8"
ADA staging area markers using tactile strips	4'	6'	8'
Transit stop sign pole at front boarding, with location identifier and Braille plate	5' x 5'	6' x 6'	8' x 8'
Route maps & timetable information	2' x 3' display area	3' x 4' display area	3' x 4' + 2' x 3'
Sitting benches under shelter	Two @ 1.5' x 3'	Four @ 1.5' x 4'	Eight @ 2' x 4'
Lean bars or rails under shelter	Two people	Four people	8 people
Trash receptacles	One Side Access	One Side Access	Two Side Access

Table 8-1 Summary of Station Requirements; SDSU Showcase BRT Project

Street/Station Interface Criteria	Minimum	Ideal	Maximum
Security lighting	5 foot candles	10 foot candles	15 foot candles
Special banners/signage for station location identifier	Banner w/ project logo	Station name banner	2 banners (logo/name)
Concrete bus pad	10' x 50'	12' x 60'	14' x 75'
Ticket vending machine with Smart Card recharge capabilities	3' x 3' pad	6' x 3' pad	6' x 6' pad
Real time bus arrival LED display system	6" x 3' LED sign	1' x 4' sign	2' x 6' sign
Street trees	1 broad canopy tree	2 broad canopy trees	4 broad canopy trees
Extra Elements for Larger Stations Only			
Large size solid roof shade shelter	4' 8" x 16' 7"	10' x 25'	16' x 40'
Community information board/map	1 display @ 3' x 4'	2 displays @ 4' x 6'	2 displays @ 4' x 8'
Bike racks	2 spaces	4 spaces	8 spaces
Public art (accommodate art option but may not finance)	2-D Panel	Integral	3D Stand-alone
Spot lighting of logo/station identification	On banner	On structure focal point	Both (banner/ structure)
Small kiss-n-ride drop-off facility or 15-minute passenger loading zone	One 15-min. loading space	Two 15-minute spaces	Four 15-minute spaces
Optional Elements Not Necessarily Recommended			
Computer kiosk for route and service information			
Electronic display (advertisement/info channel/can include bus arrival times)			
Smart Card reader at loading area (versus on the bus)			
Closed-circuit TV security cameras			
Photovoltaic panels (reverse meter)			
Advertisement panel			
News rack system			
Wind break built into shade structure			
Small park & ride facility (only where joint partnership opportunities exist and land is available)			

Community Preferences

Table 8-2 is a summary of the results of workshop input on the types of amenities requested by the general public. All of the top ten most important station elements, as determined by community input, have been incorporated into the typical station design. Items that received a negative priority rating from the community have not been included.



POSSIBLE STATION FEATURES

WHAT YOU CAN DO!

Review the proposed station features & vote using your 7 blue dots (highest priority features the service must have) & 3 red dots (features that should not be included at stations).

ROUGH SCORE

RANK

SUGGESTED ELEMENTS AT ALL STATIONS

20 (-1)=19	6/7/8	Moderate sized solid roof shade shelter with integral logo / name
9 (-1)= 8		Special banners /sign pole / signage for station location Identifier
32 (0)= 32	2	Route maps & timetable information
23 (-2)=21	5	Sitting benches under shelter
1 (-5)= -4	DROP	Lean bars or rails under shelter
19 (-0)=19	6/7/8	Trash receptacles
23 (-0)=23	3/4	Security lighting

EXTRA ELEMENTS FOR LARGER STATIONS

5 (-0)=5		Large size solid roof shade shelter
23 (0)=23	3/4	Ticket vending machine with Smart Card recharge capabilities
37(0)=37	1	Real time bus arrival LED display system
5 (-2)=3		Community information board / map
11 (-1)=10	10	Bike racks
8 (-6)=2	DROP	Public art
19 (0)=19	6/7/8	Street trees
3(-7)=-4	DROP	Small Kiss & Ride drop-off facility or 15 minute passenger loading zone

OPTIONAL ELEMENTS

14 (-1)=13	9	Computer kiosk for route and service information
6 (-3)=3	DROP	Electronic display (advertisement / info channel / can include bus arrival times)
12(-5)=7		Closed circuit TV security cameras
8 (-2)=6		Photovoltaic panels (reverse meter)
0(-21)=-21	DROP	Advertisement panel
1(-4)=-3	DROP	Newsrack system
2 (-1)=1		Wind break built into shade structure
6 (-8)=-2	DROP	Small "Park & Ride" facility (only where joint partnership opportunities exist and land is available)"



SDSU to DOWNTOWN BUS RAPID TRANSIT SHOWCASE PROJECT

Table 8-2: Station Feature Summary from the Workshop

Table 8-3 presents the community workshop results regarding design elements that might be included in the station shelters, and the types of materials that could be used to construct each element. Most of the preferred design features or materials as selected by the community have been incorporated into the preliminary design, or will be recommended to the final design team.

Station Layout

A number of station locations (near-side, far-side, and mid-block) were tested from a parking and traffic impact analysis perspective. It was determined that a far-side location near the intersection is the best arrangement for most stations. An out-of-lane site plan was developed and tested, along with an in-lane bus bulb-out configuration. The in-lane configuration is more beneficial for traffic flow and transit dwell time at the station. It limits the length of time needed for the bus to get back into the flow of traffic. This configuration also limits the amount of lost parking and maximizes the space available for station amenities. Since the bus does not have to weave out and in, the length of the platform and disrupted parking are minimized. As such, most stations have been laid out with a priority for bus bulb-outs on the far side of intersection locations except where local conditions dictated an alternative configuration.

Crosswalk Improvements

All stations include the enhancement of existing crosswalks. Where feasible (given bus movements and other turning lane requirements), pedestrian bulb-outs are included in the station design. Bulb-outs improve the visibility of pedestrians by providing a location where the pedestrian and the driver can connect visually. The bulb-outs decrease the overall crossing distance for pedestrians. At all crosswalks located adjacent to stations, the pedestrian push-button equipment will be upgraded to newer technology that meets accessibility standards for visibility, height, type of actuator, and possibly audible devices for the sight-impaired (if required at the time of installation). All curb returns located in the immediate block of a transit station will have the associated pedestrian ramps upgraded to the latest ADA standards.

Crosswalk improvements also include the addition of zebra or ladder style markings that are much more visible to the driver from an approaching roadway segment. The ladder style is commonly used throughout other countries and provides enough contrast and scaled markings in the roadway to be noticed. The use of ladder-style crosswalks should be approved by City traffic engineering staff prior to construction, but such markings are permissible under the Manual of Uniform Traffic Control Devices.

Street Tree Improvements

The existing setting of El Cajon Boulevard and Park Boulevard includes several miles of intact street tree plantings. Some of these plantings include very large and mature eucalyptus species. Most of the more recent landscaping efforts have been in the medians. Additional street trees would enhance the pedestrian environment, especially at stations.

Each transit station will include two new street trees (unless this requires the removal of existing mature trees). This assumes a minimum spacing of 25 feet between trees and that these trees should not interfere with the pedestrian and bus movements of the station nor block the visibility of the transit facility. The trees should be located to provide shade for transit users. The recommended species will depend on the adjacent dominant species and space available for planting and will conform to the community plan streetscape element, where applicable.

Table 8-3 ~ Transit Shelter Elements

Optional Design Features			Alternative Materials for Construction					
Item	Design Alternative	Community Votes for each Alternative	Material Options and Number of Votes for Each					
Roof								
	No Roof	0						
	Solid Roof	8	sheet metal	2	standing seam	0		
	Semi-Solid Roof	0	steel trellis	0	perf. metal	0		
	Translucent Roof	8	glass	4	plastic	2		
Support								
	Single Support	4	steel	4	concrete	0		
	Dual Supports	1	steel	0	concrete	0		
	Multiple Supports	3	steel	4	concrete	1		
Windbreak								
	Include - 3 sides	9	sht. metal	0	perf. metal	2	glass/acrylite	3
	Include - Backside only	1	sht. metal	0	perf. metal	0	glass/acrylite	
	Do not include	2						
Seating								
	Bench seating	2	concrete	0	metal	2		
	Individual seats	11	concrete	1	metal	2		
	No seats	1						
Advertisements								
	Large Ad panel	0						
	Small Ad panel	4						
	No Ad panel	9						
Lighting								
	Include - under canopy	7	Fluorescent	3	High Pressure Sodium	1	Low Pressure Sodium	0
	Include – adj. to canopy	13	Fluorescent	0	High Pressure Sodium	3	Low Pressure Sodium	2
	Do not include	0						

NOTE: Shaded items indicate most popular choices.

A minimum of a 6-foot by 6-foot planting area is required. In areas where the cut-out or planter may affect pedestrian flows, the use of tree grates will be required.

Site Furnishings

A detailed description and site plan showing the site amenities can be found in **Figure 8-2** and in Table 8-1. The most critical site furnishing beyond the shade structure is a place to sit and/or lean. The seating should be designed to handle up to a dozen people, with another dozen likely to be standing or leaning on station elements. Care must be taken to ensure that the seating areas do not invite vagrant sleeping or skateboard trick riding.

A variety of seating types and areas should be considered. A primary bench for up to six people should be under the shade structure. Another bench should be considered for three to four people, located away from the primary bench and potentially under the shade of a tree or in the sun. A lean bar under the shade structure and another by the information kiosk should also be provided. All of these options match the typical dynamics of people at a transit stop. Many will want semi-private distance and will want to stand and see down the road for approaching bus arrivals. Others want to sit out of the sun, while still others (depending on the time of year) will want to sit in the sun. At least two trash receptacles should be provided at each station.

A bike rack should be provided for those who may want to leave a bike at the station. Many riders will choose to take their bikes along on the bus so the capacity of the bike rack can be limited to four bikes.

The information kiosk will be an important feature of the transit station. This kiosk will include the ticket vending machine, as well as LED displays providing route information and next bus arrival information. Route maps should also be considered for the kiosk. If a computer terminal with a touch screen is to be included, it will need to be in the information kiosk.

The kiosk could also support a tall pole extension for a three-color light diode (neon or LED). This diode would stay red when a bus is more than five minutes away. It would change to yellow when the bus is between one and five minutes away. It would flash green when the bus is less than a minute away. All of this would be controlled as part of the next bus feature of the real-time vehicle tracking system.

Three LED panels for indicating the time that the next bus is expected to arrive would also be placed around the station. One would be located on the kiosk. Two other LED displays would be hung from the transit shelter in order to be visible from various locations in and around the transit shelter.

Lighting Improvements

Lighting improvements have not been fully designed and should be a priority of the next phase. Lighting intensity will be based on design criteria for LRT stations, unless SANDAG chooses to establish a separate standard for BRT stations. The light will be for two purposes.

The primary function of lighting is security and safety from trip hazards and other obstructions, as well as for providing a well-lighted public area. This lighting will be installed on the shade structure to provide illumination around the seating and walking areas leading to the boarding zone for the bus.

